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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,210	07/27/2001	Yang-Lim Choi	Q61834	6848

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EXAMINER

AN, SHAWN S

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/916,210

Applicant(s)

CHOI ET AL.

Examiner

Shawn S An

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7 and 9-11 is/are rejected.
- 7) ☒ Claim(s) 4-6 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. As per Applicant's instruction in Paper 8 as filed on 3/12/04, claim 10 has been amended.

Response to Remarks

2. Applicant's arguments with respect to claims 1-3, 7, and 9-11 have been considered but are moot in view of the new ground(s) of rejection incorporating the previous prior art (Martens et al (6,157,677)).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

4. Claims 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Martens et al (6,157,677).

Regarding claim 9, Martens et al discloses an object activity modeling method comprising the steps of:

obtaining feature vectors by motipn estimation for video frames (Fig. 2; col. 4, lines 64-67);

determining a state, to which each frame belongs, using the obtained feature vectors (col. 2, lines 45-49); and

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determining an activity model, which maximizes the probability between activity models and video frame using a transition matrix for the determined state, as the recognized activity (abs.; col. 13, lines 59-67; col. 14, lines 1-12).

Regarding claim 10, Martens et al discloses maximizing probability (Fig. 7), where T is a positive integer indicating the number of frames forming video sequences, wherein Z_n are feature vectors (col. 2, lines 45-49) of T-th frame, and E = number of state models (Fig. 8).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martens et al (6,157,677).

Regarding claim 1, Martens et al discloses an object activity modeling method comprising the steps of:

obtaining an optical flow vector from a video sequence (Fig. 2; col. 4, lines 64-67);

estimating the probability distribution of the feature vector for a plurality of video frames (Fig. 7; col. 18, lines 49-61);

modeling states using the probability distribution of the feature vector (col. 2, lines 45-49); and

expressing the activity of the object in the video sequence based on state transition (Fig. 8).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing an object activity modeling method as taught by Martens et al to incorporate the teachings as above, and determine the probability distribution of the feature vector for a plurality of video frames, in order to have more precise results subsequent to the estimation part.

Regarding claim 2, Martens et al discloses affine motion estimation (col. 36, lines 4-12).

Regarding claim 3, Martens et al discloses:

grouping video frames into a plurality of video frame groups and dividing each video frame group as an individual state (abs.);

obtaining an affine motion parameter for each video in the video frame group of each individual state (col. 36, lines 4-12);

obtaining optical flow vector from the affine motion parameters (Fig. 2; col. 4, lines 64-67).

Regarding claim 7, the Examiner takes official notice that Hidden Markov Model (HMM) is well known in the art for comparing input speech signals with the word models. Therefore, it would have been obvious to a person of ordinary skill to employ HMM for an efficient operator and machine interface.

Regarding claim 11, the Examiner takes official notice that an expectation maximization algorithm can be carried out in the statistical learning process. Therefore, it would have been obvious to a person of ordinary skill to employ the expectation maximization algorithm based on the observation symbol probability corresponding to the scene in the training process.

Allowable Subject Matter

7. Claims 4-6 and 8 are objected to as being dependent upon a rejected base claim 1, but would be allowable: **if claim 4** is rewritten in independent form including all of the limitations of the base claim 1 and any intervening claims; or **if claim 5** is rewritten in independent form including all of the limitations of the base claim 1; or **if claim 6** is rewritten in independent form including all of the limitations of the base claim 1; or **if claim 8** is rewritten in independent form including all of the limitations of the base claim 1 and any intervening claims.

Dependent claims 4-6 and 8 recite the novel features.

Accordingly, if the amendments are made to the claims listed above, and if rejected claims are canceled, the application would be placed in condition for allowance.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Shawn S An whose telephone number is 703-305-0099. The examiner can normally be reached on Flex hours (10).

9. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SSA 

Primary Patent Examiner

5/27/04